

Functions and Inequalities

NAME: key

TOPIC C: Function Notation

DATE: _____

1. Evaluate the following expressions given the functions below:

$$g(x) = -3x + 1$$

$$f(x) = x^2 + 7$$

$$h(x) = \frac{12}{x}$$

$$j(x) = 2x + 9$$

a. $g(10) = -3(10) + 1$

$$g(10) = -29$$

b. $f(3) = 3^2 + 7$

$$f(3) = 16$$

c. $h(-2) = \frac{12}{-2}$

$$h(-2) = -6$$

d. $j(7) = 2(7) + 9$

$$j(7) = 23$$

e. $h(a) = \frac{12}{a}$

f. $g(b+c) = -3(b+c) + 1$

$$g(b+c) = -3b - 3c + 1$$

h. Find x if $g(x) = 16$

$$g(x) = -3x + 1$$

$$16 = -3x + 1$$

$$-5 = -x$$

i. Find x if $h(x) = -2$

$$h(x) = \frac{12}{x}$$

$$-2 = \frac{12}{x}$$

$$-2x = 12$$

$$x = -6$$

j. Find x if $f(x) = 23$

$$f(x) = x^2 + 7$$

$$23 = x^2 + 7$$

$$16 = x^2$$

$$+4, -4 = x$$

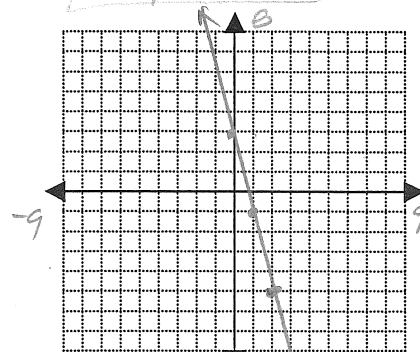
2. Given $f(x) = 3 - 4x$. Fill in the table and then sketch a graph.

$$-5 = 3 - 4x$$

$$-8 = -4x$$

$$2 = x$$

x	f(x)
-6	27
-3	15
0	3
1	-1
2	-5



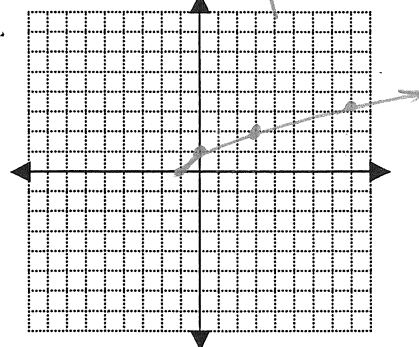
3. Given $f(x) = \sqrt{x+1}$. Fill in the table and then sketch a graph.

$$6 = \sqrt{x+1}$$

$$36 = x+1$$

$$35 = x$$

x	f(x)
3	2
0	1
-10	X
2	$\sqrt{3}$
	6



4. Translate the following statements into coordinate points, then plot them!

a. $f(-1) = 1$

$$(-1, 1)$$

b. $f(2) = 7$

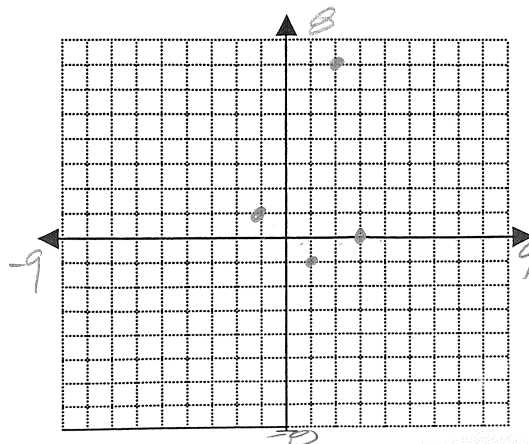
$$(2, 7)$$

c. $f(1) = -1$

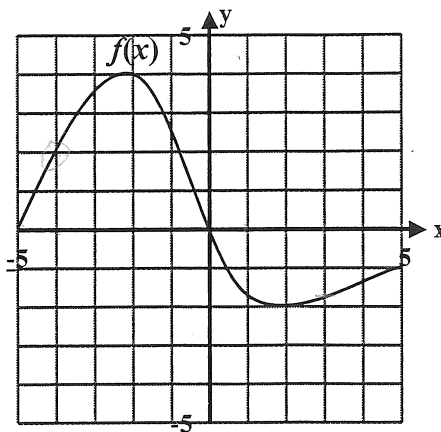
$$(1, -1)$$

d. $f(3) = 0$

$$(3, 0)$$



5. Given this graph of the function $f(x)$:



Find:

a. $f(-4) = 2$

b. $f(0) = 0$

c. $f(3) = -1.8$

d. $f(-5) = 0$

e. x when $f(x) = 2$

$x = -4$

f. x when $f(x) = 0$

-5 and 0

6. Find an equation of a linear function given $h(1) = 6$ and $h(4) = -3$.

(NOTE: Same as write the equation of the line given two points!)

$(1, 6)$ $(4, -3)$

$m = \frac{-3-6}{4-1} = \frac{-9}{3} = -3$

$y-1 = -3(x-6)$

$y-1 = -3x+18$
 $+1$ $+1$

$y = -3x+19$

$f(x) = -3x+19$

APPLICATION

7. Swine flu is attacking Porkopolis. The function below determines how many people have swine where t = time in days and S = the number of people in thousands.

$S(t) = 9t - 4$

a. Find $S(4)$. $= 32$

b. What does $S(4)$ mean?

people who have the flu on the 4th day

c. Find t when $S(t) = 23$.

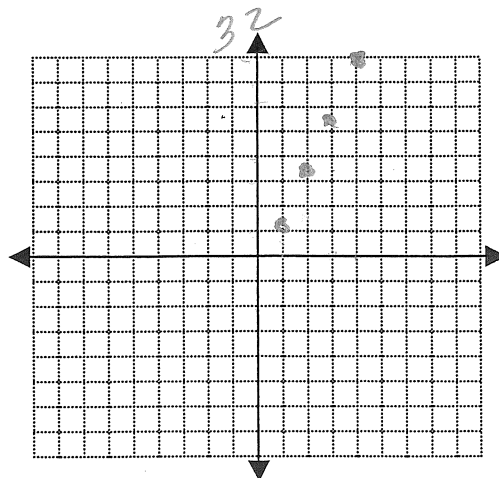
$23 = 9t - 4$
 $+4$
 $27 = 9t$

$t = 3$ days

d. What does $S(t) = 23$ mean?

at t days 23 thousand have the flu

e. Graph the function.



why do we not connect the points?
(you cannot have fractions of people!)